CONESTOGA-ROVERS & ASSOCIATES

651 Colby Drive, Waterloo, Ontario, Canada N2V 1C2
Telephone: (519) 884-0510 Fax: (519) 884-0525
www.CRAworld.com

MEMORANDUM

TO:	Steve Renninger, USEPA	REF. NO.:	038443-62-03
FROM:	Adam Loney/Valerie Chan, CRA/cb/23	DATE:	February 26, 2014
CC:	Leslie Patterson, USEPA, Madelyn Smith, Ohio EPA; Ken Brown, ITW; Wendell Barner, TRW; Bryan Heath, NCR; Jim Campbell, ITW; Brett Fishwild, CH2MHill; Steve Quigley, CRA; John Sherrard, CSS-Dynamac		
RE:	**Parcel 5171, B&G Trucking, Building 8, 1951 Dryden Road**		

Conestoga-Rovers & Associates (CRA) has prepared this memorandum to document the available data for trichloroethene (TCE) concentrations in indoor air (IA), sub-slab (SS) soil vapor, soil, and groundwater at B&G Trucking (Building 8), located at 1951 Dryden Road. CRA prepared this memorandum in response to a request from the United States Environmental Protection Agency (USEPA) during the February 20, 2014 conference call to discuss the status of Vapor Intrusion (VI) Activities for the South Dayton Dump & Landfill Site (Site). CRA is submitting this memorandum on behalf of the Respondents to the Administrative Settlement Agreement and Order on Consent (ASAOC) for Remedial Investigation/Feasibility Study (RI/FS) of the Site, Docket No. V-W-06-C-852 (Respondents).

USEPA requested the summary of TCE data for Building 8 following the continued detection of TCE in SS samples at concentrations greater than the Ohio Department of Health (ODH) screening levels of 20 parts per billion (ppb). A summary of IA, SS, soil, and groundwater analytical results greater than the applicable USEPA and ODH screening levels is provided on Figure 1.

CRA completed a building Physical Survey Questionnaire for Building 8 on June 22, 2011. Building 8 is a 13,700 square foot (ft^2), commercial-use, concrete slab-on-grade building constructed prior to 1968, consisting of a two-story office area in the front and a single-story repair shop/bay area in the rear. The office area is brick with finished interior walls and the shop area consists of concrete block walls. Neither the office nor the shop are insulated. The building floor slab contains three drains, numerous cracks, and there was visual evidence of spills including pooled liquid underneath two trucks parked in the shop/bay area. CRA detected a strong paint odor in the north-east office area and in the paint booth located at the rear of the shop. Exterior openings include vents, fans, windows, utility pipe penetrations, and ten bay doors. There is a sump located within the shop/bay area and the building is serviced with municipal water and sewer. The building has central air in the office area only, and is heated by a combination of a gas furnace and a used oil stove.

On February 16, 2012 CRA completed an IA building assessment on Building 8 and observed a number of factors that may influence IA quality and contribute to reduced IA quality in the building. These factors included, but are not limited to, (i) personnel smoking tobacco products in the building, (ii) the storage and operation of petroleum-fuelled vehicles inside the building, (iii) the use of products and solvents including paints, lacquers, hardeners, thinners, degreasers, and oils.

TCE concentrations measured in the IA and SS samples beneath Building 8 are summarized in Table 1 below.

Table 1 - B&G Trucking (Building 8) TCE Concentrations (ppb)

Parameter	*Location*	*January 2012*	*March 2012*	*August 2012*	*September 2013*	*January 2014*	*ODH Screening Levels*	*ODH Action Levels*
TCE	IA-8-A	--	--	--	0.036 U	0.33 U	2	20
	IA-8-C	--	1.5 J	0.12 J	0.076 J	--		
	IA-8-D	--	--	--	0.052 J	0.38 J		
	IA-8-F	--	1.4 U	0.96/0.89	0.11 J	0.14 J		
	IA-Office	--	8.5 U	0.29	0.057 J	0.36 U		
	SS-8-A	***1400***	***960***	***1800***	***780***	***220***	20	200
	SS-8-B	**31**	**26**	**95**	--	--		
	SS-8-C	11	17	**35**	--	--		
	SS-8-D	***420***	***420/350***	***930***	**200/*290***	**36/43**		
	SS-8-F	5.3/5.6	5.3	3.0	--	--		

Notes:

Bold – indicate concentrations greater that ODH screening levels
Bold and italic – indicate concentrations greater than ODH action levels
J - The chemical was detected by the laboratory, the listed value is an approximate concentration
U - The chemical was not detected in the sample at the detection limit shown

Prior to the installation of the sub-slab depressurization system (SSDS) and crack-sealing in Building 8 in August of 2013, VI sampling results in SS probes A, B, C, and D indicated SS concentrations of TCE greater than the ODH screening level of 20 ppb. The greatest TCE concentrations of 1,800 and 930 ppb were detected at probes A and D, respectively in August 2012. Hybrid proficiency sampling conducted following SSDS installation and upgrades in September 2013 and January 2014 indicated a significant decrease in TCE concentrations from 1,800 to 220 ppb at probe A, and 930 to 36 ppb at probe D. While TCE concentrations were still above the ODH screening level of 20 ppb, and in the case of probe A above the ODH action level of 200 ppb, there is a definite decreasing trend in SS concentrations since the SSDS installation. TCE concentrations in IA were less than the ODH screening level of 2 ppb in all samples collected in March 2012, August 2012, September 2013 and January 2014.

Vacuum readings at each SS probe in Building 8 from December 2013 (post SSDS installation) are presented on Figure 1. Vacuum readings at all probes were greater than the acceptable threshold of -0.004 inches of water column, with the exception of probes F, G, H, and L where the vacuums were recorded at 0.00054, 0.00079, -0.00011, and -0.00041 inches of water column, respectively. Probes F, G, and H are located in the office area of Building 8. In this portion of the building, the duct work for the forced air furnace is located beneath the floor slab. When the furnace is operating, it appears to pressurize the sub-slab area. Probe L is located within the paint booth which appears to have been constructed separately and is physically separated from the main building. Vacuum at suction point locations EP-1, EP-2, EP-3, and EP-4 were 3.25, 1.00, 2.75, and 2.50 inches of water column respectively, which is within the acceptable range specified in the VI Mitigation Work Plan (CRA, 2013).

Groundwater samples from investigative locations adjacent to Building 8 (MW-216, VAS-14, BH55-13, BH56-13, BH60-13, and BH61-13) had no detectable TCE concentrations greater than the USEPA Maximum Contaminant Level (MCL) of 5 micrograms per liter (µg/L). However, TCE was detected at concentrations greater than the USEPA Tapwater criteria of 0.44 µg/L in the groundwater samples from VAS-14 (3.0 µg/L), BH55-13 (2.1 µg/L), BH56-13 (0.71 J µg/L), BH60-13 (1.3 µg/L), and BH61-13 (0.80 J µg/L) (Figure 1).

Groundwater concentrations that are protective of residential and industrial air were calculated using the following equation from Appendix H.6 of the *Vapor Intrusion Pathway: A Practical Guideline*. Interstate Technology & Regulatory Council, 2007:

$C_{GW} = C_{IA}/(H \times \alpha \times 1000\ L/m^3)$

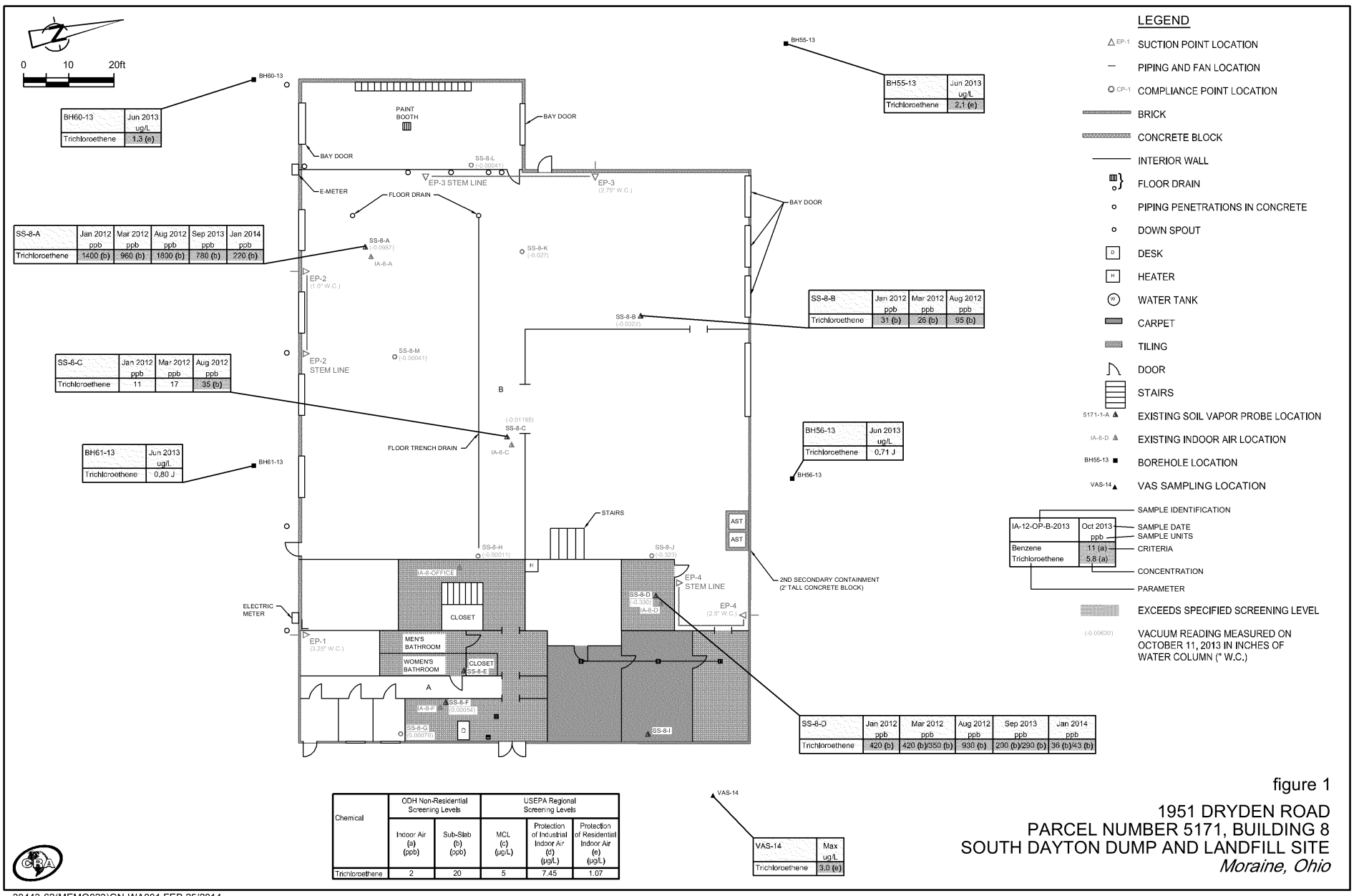
Where:

- C_{GW} = groundwater screening level (µg/L)
- C_{IA} = target indoor air level (µg/m^3)
- H = Henry's law constant (dimensionless)
- α = groundwater attenuation factor (dimensionless)

USEPA Residential and Industrial Indoor Air RSLs (November 2013) were used for the target indoor air levels (C_{IA}). An attenuation factor of 0.001 is used, in accordance with the draft *OSWER Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air*, USEPA, 2013. There were two TCE detections at BH55-13 and BH60-13 of 2.1 and 1.3 µg/L, respectively, which were greater than the USEPA Protection of Residential IA criteria of 1.07 µg/L (Figure 1). No TCE groundwater concentrations were greater than the USEPA Protection of Industrial IA criteria of 7.45 µg/L.

TCE concentrations detected in soil samples collected adjacent to Building 8 were less than the USEPA Regional Screening Level Industrial Soil criteria of 6,400 micrograms per kilogram (µg/kg) and USEPA Soil Screening Level for Protection of Groundwater MCL-Based value of 1.8 µg/Kg.

The absence of significant concentrations of TCE in soil and groundwater immediately surrounding Building 8 likely indicates that there is a small, localized source of shallow TCE contamination in the soil immediately beneath Building 8. The absence of IA concentrations of TCE greater than USEPA and ODH Screening Levels and the decreasing trend in SS TCE concentrations since the installation of the SSDS indicate that the SSDS is successfully eliminating the VI pathway and appears to be removing TCE from the sub-slab. Therefore, CRA proposes continued monitoring of Building 8 IA and SS locations to determine if TCE concentrations will continue to decrease to less than ODH screening levels.



Chemical	ODH Non-Residential Screening Levels		USEPA Regional Screening Levels		
	Indoor Air (a) (ppb)	Sub-Slab (b) (ppb)	MCL (c) (µg/L)	Protection of Industrial Indoor Air (d) (µg/L)	Protection of Residential Indoor Air (e) (µg/L)
Trichloroethene	2	20	5	7.45	1.07

VAS-14

VAS-14	Max ug/L
Trichloroethene	3.0 (e)

figure 1

1951 DRYDEN ROAD
PARCEL NUMBER 5171, BUILDING 8
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-62(MEMO023)GN-WA001 FEB 25/2014